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METHOD OF MAKING PHOTO-MICROGRAPHS OF MOSSES AND HEPATICS.

WILLIAM B. DAVIS,

(Abstract of Talk given at Sullivant Moss Society Meeting, Baltimore, 1908.)

To the uninitiated photo-micrography seems to belong to the realms of mystery and difficulty. It is safe to assume that the majority of bryologists are amateur photographers, and use a compound microscope in their work. The reason that this form of work is not more common arises no doubt from fancied rather than real obstacles. The paraphernalia and manipulation required are both simple and easy. While it is not given to all of us to have sufficient artistic ability to produce creditable reproductions of what we see, yet the poorest sort of a carpenter can build the necessary outfit for this work. Again some of our drawings are apt to be colored with what we think we see. Given a fairly transparent section or mount (as most preparations of the mosses and hepatics are), a coal-oil lamp, compound microscope, and plate camera, we can at least have the experience of something novel. Nor is the possession of a suitable camera a *sine qua non*. Obtain a plate holder and build your camera somewhat after the plan of the man who carried the bung-hole to the cooper's shop to have a barrel made for it. The camera lens is not used in this work.

Take a small wooden box, or glue one together from stiff cardboard; blacken it on the inside; cut a hole in the front, and through the hole push a cone shaped like a megaphone. The architects' ingenuity will suggest a way to hold the ground glass and plate holder at the other end. Make the box perfectly light tight.

To take the photograph bend the microscope over to a horizontal position. Lower or raise the lamp on some books with lamp in front of the microscope, edge of flame towards the microscope and in line with the optic axis; swing the mirror out of the way; place the object (transparent of course) under the spring clips. Have the camera box on a level with the microscope and push the small end of the cone over the tube of the microscope, the eye piece remaining on, if the home made affair is used.

If using a plate camera, remove the lens and push the tube into the camera. By focusing, the clear image of the object will be seen on the ground glass. Some folds of dark cloth should be wrapped about the tube where inserted into the camera in order to keep out all light. After the sharp image has been obtained, care must be exercised by pressing firmly with one hand to make sure that the apparatus is not disturbed while inserting the plate holder.

Exposure by lamp light will require considerable time, perhaps some minutes, and experience at this stage will be the best guide. Opaque objects can be best photographed by using ordinary daylight.

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